

ARTS AND SCIENCE 2001 PLUS
A REPORT BY THE ARTS AND SCIENCE THINK TANK
CONCORDIA UNIVERSITY

November 22, 1995

Dr. David Cheeke, Physics (Chair)
Dr. Daphne Fairbairn, Biology
Dr. Nathaly Gagnon, Leisure Studies
Dr. Mark Hale, Modern Languages
Dr. Sheila Mason, Philosophy
Dr. Richard Schmid, Education
Dr. Ron Smith, Learning Development
Dr. Katherine Waters, English


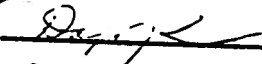

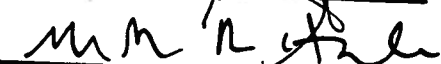



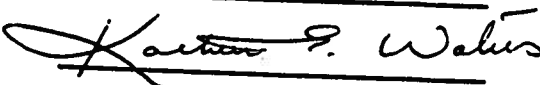









Table of Contents

Page

1	Title Page
2	Table of Contents
3	Preamble and Recommendations
4	General Trends in Higher Education
8	Matching Skills upon Graduation to Community Expectations
12	Strengths and Weaknesses of the FAS
15	Restructuring and Physical Environment
18	The Learning Experience and the Work of Faculty
Addendum 1	"Reducing Student Costs and Enhancing Student Learning: The University Challenge of the 1990s", Alan E. Guskin.

PREAMBLE AND RECOMMENDATIONS

"Focusing on student learning turns our thinking about the future of our universities upside down"

—Alan Guskin

In addressing the university challenge of the 1990s, educator Alan Guskin states that "the costs of education, the demand for enhanced learning outcome, and rapid advances in technology will bring pressures for radical change in administrative and educational practices, . . . a restructuring of how people work, [and a refocusing] on student learning, not on the professional needs of administrators or faculty."

While the recommended practices summarized below hardly sound radical, their meaning is transformed if they follow from the fundamental reconceptualization of the work of students, faculty, and administrators that Guskin urges us to imagine. In the words of poet Adrienne Rich, "re-vision--the act of seeing with fresh eyes, of entering an old text from a new direction, is essential if we are not going to see the old . . . order reassert itself in every new revolution." (Adrienne Rich, 1979, p.35)

Recommendations:

1. Implementation of a more liberal education encompassing the humanities, social, and natural sciences.
2. Student acquisition of general competency through courses which develop communication, numeracy, and employability skills.
3. Rationalization of space to facilitate student learning and interaction among units.
4. Promotion and recognition of scholarship associated with innovative teaching.
5. Widespread use of technology to create new ways of working and to facilitate efficient, shared learning; decreased emphasis on the traditional lecture format; the encouragement of participatory and collaborative learning.
6. Review of the administrative structure of the Faculty in terms of the effectiveness of a single Faculty for implementing our educational mission, of centralization; and of departmental power/powerlessness. This question should be addressed both within the faculty and at the level of the University as a whole, including its professional and technical unions.*

* In this document the acronym FAS is used for the Faculty of Arts and Science at Concordia University, "Faculty" is used to denote the administrative unit of a university in general and "faculty" a member of the professoriate.

CHAPTER ONE: GENERAL TRENDS IN HIGHER EDUCATION

(1) HIGHER EDUCATION IN CANADA IN THE GLOBAL ECONOMIC CONTEXT

There are a number of fundamental economic, social and political forces at work in Canada which will have a profound effect on higher education for the foreseeable future. Most of these find their origin in international events or trends. We identify four such global forces:

(a) Economic Globalisation: One powerful effect of the globalisation of the world economy is the impact of international competition on our jobs and the products we use, and the consequent premium paid to those with the highest productivity. Good jobs are becoming harder to find and to keep, and the concept of a safe, permanent job is becoming rare. The depth and breadth of job skills have become critical, and those people without them are destined to become marginalised in minor service roles. This analysis applies just as much to societies as it does to individuals.

(b) Knowledge Society: Hand in hand with globalisation goes the concept of "the Knowledge Society" or "Post-Capitalist Society" in the language of Peter Drucker (1990). Knowledge has become the key commodity in this society, much as basic raw materials such as iron and coal were the key commodities of the industrial age. This explosion in the quantity, the quality and the importance of knowledge will have a critical influence on the future orientation of our universities.

(c) New Media: Coupled to the increasing importance of knowledge is an intrinsically qualitative improvement of access to it. Until now institutions of higher learning have had a virtual monopoly on the training in, the dispensing of, and research for knowledge. With the rapid development of modern information technology, however, this need not be the scenario in the future; in particular, private companies could easily take over all or part of the knowledge mission. New media (information highway, world wide web) will soon have an important place in higher education.

(d) Economic and Political Climate: A constrained economic and political climate is foreseen for higher educational institutions for the long term, given the extent of and concern with public debt in North American society; with the debt compounding, the problem must get worse in the short term. The likely consequences are:

- Declining availability of public funds for supporting higher education, leading to increased pressure on its public accountability.

- Rising tuition fees.

- Declining resources for research in university, government and to some extent in industry.

Even if they continue to receive preferential treatment from the government, granting councils will get a smaller pot of money. They will continue to favour research that is "relevant" and encourage more partnerships with industry.

On the political-economic front, two ongoing long term trends will be accentuated:

- There will be increased pressure from the government for rationalisation of all programmes and institutional entities, as is being carried out in Nova Scotia at the present time. CREPUQ has already started a similar operation in Quebec.
- Business will continue to demand flexible and well educated university graduates from Canadian institutions, or, if necessary, elsewhere.

(2) REACTION OF CANADIAN UNIVERSITIES TO GLOBAL TRENDS

After World War Two the Canadian university system entered a twenty five year period of explosive growth, evolving from a small set of elitist institutions to a national network of open, accessible universities. With a few notable exceptions (e.g. SFU, UVIC), the subsequent twenty five years have been a period of consolidation characterised by little or no growth.

The next decade should see the end of this long consolidation period and there are unmistakeable precursors of the emergence of a qualitatively different university of the future. This will likely be an era of remarkable opportunity for those institutions with foresight. Fortunately, a period of great change will occur at a time when the universities should be able to respond, in part due to a massive retiring of faculty and their replacement by a younger generation.

As a first step in examining how Concordia University could respond to the global forces at work, we have analysed the strategic plans of the other "comprehensive" Canadian universities (using Maclean's categorization of universities into Medical/Doctoral, Comprehensive and Primarily Undergraduate). Some general trends are summarised below corresponding to the subsequent chapter headings of the report.

(a) Employability Skills: It is clear from numerous surveys that employers are seeking university graduates who are flexible and who possess strong basic skills such as good written and oral communication, critical thinking, computer skills, ability for life long learning, and cultural breadth adapted to a global economy. The comprehensive universities have recognised this trend and are proposing various approaches to striking a balance between a traditional core curriculum and the more recent "cafeteria" curriculum; thus, student and employer can insist on combining a suitably specialised programme with the acquisition of the range of skills and intellectual awareness appropriate to a educated person. For example, Guelph is planning a mandatory first year "inquiry course" which will integrate thinking in the humanities, social sciences and natural sciences.

(b) Structures: There is little preoccupation with structures in the strategic plans of most comprehensive universities; this may be due to acceptable structures having been obtained by trial and error. It may also be due to denial, or inertia, or despair, or entrenchment, or the wish to produce positive documents. In any case, the major trend is to make existing structures more efficient, flexible and interactive with an eventually smaller university community. All universities will try to do more with less by downsizing and cost cutting. Major restructuring will accompany rationalisation of university networks where it occurs (e.g. Nova Scotia).

(c) The Learning Experience: This is the area in which most comprehensive universities anticipate the greatest change; indeed, it is already fast occurring. The reason, of course, is the rapid development and actual use of multimedia technology. Some universities may be unrecognisable as pedagogical institutions in a few years; for example, by the year 2000 SFU "will offer 80% of its courses using networked multimedia workstations for interaction between instructors and students". In addition to full internal use of multimedia, SFU plans to exchange 100 courses per semester with other BC universities. The long term strategic plans of almost all comprehensive universities include significant use of multi media.

The sharing demanded by multimedia will be paralleled by other forms of shared learning. Some of these are:

- Course sharing
- Networking between classroom, office and home.
- More emphasis on tutorials and other forms of instructor-student interaction.
- "Open", continuing kinds of education to facilitate life long learning.
- More emphasis on interpersonal skills: students working in teams or other collaborative units.

Multimedia may well be "overhyped" at the moment. Nevertheless, its impact appears to be similar to that of the introduction of the PC in the late seventies. As well, information technology is still at the Model T stage; while no one can predict exactly what form it will take in twenty years, it must be fully addressed by any serious strategic plan.

Finally, the effect of both electronic and pedagogical sharing will be fewer formal traditional lecture courses.

(d) Role of faculty: As noted above, newer and more effective ways of teaching are a high priority for most universities; at the same time, research has retained a high place on the list. Nearly all Canadian universities encourage and support as strong a research activity as possible. Many of the medical/doctoral universities are aiming for world class status; for example, the Université de Montréal

has the goal of becoming one of the top ten research universities in North America. Despite the poor funding situation, most comprehensive universities put a uniformly high priority on research in their strategic plans. In most cases the goal is to prioritise niche areas of existing strength and to develop inter-institutional collaborations. There is also a trend towards closer integration of graduate and undergraduate studies (Guelph).

Most universities recognise that with major changes in teaching technology and more selective research perspectives, the role of the faculty must be rethought. Certainly a broad emphasis on teaching, scholarship and funded research will be maintained. In addition, decreasing government grants and increasing accountability to the public are pressures towards rationalising programmes and other activities between different universities. This includes shared courses, increased research collaboration and shared facilities in the same geographical area (especially Library and major research facilities).

CHAPTER TWO: MATCHING SKILLS UPON GRADUATION TO COMMUNITY EXPECTATIONS

Three players are inextricably bound together in the web of higher education. While they form an incredibly diverse group, each may be represented in the following way:

- The students, who want to become both employable and educated.
- The faculty, who want both to teach and to get on with their research, as well as to be involved in making a better university.
- The community at large, which wants university graduates to be both effective members of the labour force and informed citizens.

The basic equation is: can what the community wants be matched to what faculty can and should provide? If this equation can be made, an important step will have been made in establishing the nature of the basic programmes that the Faculty should provide.

(1) What Employers Want: Community Demand

A number of surveys (American Institute of Physics (AIP) (1995), Evers/Rush (1991), Corporate Council on Education, Towers Perrin (1991)) come to a consensus that corporate executives "want universities to produce flexible thinkers, not narrowly trained workers". This conclusion is backed by studies on the skills actually used by graduates. For example, according to a 1994 AIP report, Physics BScs in industry use most frequently the skills involving problem solving, interpersonal relations and management, while the least used skills were statistical concepts, knowledge of physics and advanced mathematics. Clearly the most looked for skills were those of a general and transferable nature.

The conclusion remains the same for those in less scientific areas. For example, a study carried out by the Office of Institutional Planning at Concordia on employment of graduates in Leisure Studies indicates "the necessity of providing students with a broad education." While the students in Leisure Studies requested a higher degree of specialisation to improve their chances of finding a job, this in fact decreased their chances in comparison to students with a broader degree.

Finally, a comprehensive study of 816 students from 5 Ontario Universities and 794 graduates in 20 Canadian corporations was carried out by Evers and Rush (1991). It was found that the human resource needs of both employers and employees consisted of 18 skills which could be grouped into four major categories: Mobilising Innovation (conceptualising, creativity, risk-taking, vision),

Managing (co-ordinating, decision-making, leadership, conflict management, planning), Communicating (interpersonal, listening, oral, written) and Managing Self (learning, time management, personal strengths, problem solving).

The conclusions of these studies and others converge on the notion that employees need skills such as the capacity to think, adapt, analyse, synthesise, create, access and absorb information efficiently. Of course, specialised knowledge is essential for many positions, but its value is enhanced dramatically if it is accompanied by the more general skills indicated above, and is seriously lessened without them.

(2) University Supply: The Educated Person in the "Knowledge-Based Society"

The "Knowledge-based society"

The terms "Post-Industrial Society", "Post-Capitalist Society" and "Knowledge-Based Society" have been variously employed by a number of futurologists to characterize contemporary western society. It has been pointed out that western society has undergone major qualitative changes every few centuries, as new concepts and inventions have triggered extremely sharp social and economic transformations: for example, the development of the city state in the thirteenth century; the Renaissance in the fifteenth century; the profound changes resulting from the Industrial Revolution, itself initiated by the invention of the steam engine in 1776.

We have now entered yet another era of rapid and unpredictable change, an era which began with the technological stimulus and massive social changes of World War Two. We are now in society where the basic economic resource is perceived as being, not capital, labour or land, but "knowledge".

The Educated Person

What are the characteristics of an educated person in the knowledge-based society? First, competency in the specialised and technical nature of knowledge conceived of as the creation, transfer, interpretation, assessment, communication and application of information. Second, appreciation of the broader implications of the production and uses of knowledge. Historically, this broader judgment has been developed through an education in the humanities, that is, through deep and sustained reflection on the variety of human ideals and values, as well as on the full range of human experience, both individual and social. Third, the moral imagination developed by such reflection, which is a crucial antidote to instrumental thinking. Finally and consequently, the production of creative, insightful and compassionate solutions to difficult and complex problems. Such production should inform the concerns of the social and natural sciences. The existing disciplinary structures, where they require and practice division, are often obstacles to the holistic and developmental model which allows the educated person to come into being.

The existing disciplinary structures are also often obstacles to the connections that must be made between the many branches of knowledge if we are to map, individually and collectively, the many cultures and demands of our world. This notion of disciplinary solitudes and their danger was perhaps most memorably articulated by C.P. Snow in his famous 1959 essay, "The Two Cultures". A liberal education as the sole foundation of the educated person was a widely held notion up to World War Two. However, the rapid postwar development of science and technology made it urgent that the educated person have at least a conceptual understanding of them. Snow pointed out why an understanding of the Second Law of Thermodynamics was as important to the educated person as a study of Shakespeare. Conventional modern wisdom in a technologically based society reaffirms the need for an understanding of the importance of the two cultures, liberal and scientific. It accepts the notion that not learning at least the rudiments and way of thinking of the broad domains of human knowledge is irresponsible. Yet the concept is not widely applied in standard university curricula.

Although Snow did not develop the point on the Second Law, he in fact chose an excellent example. Its cornerstone is the concept of entropy, an idea which has taken almost a century to develop to its fullest and deepest significance. Entropy gives a measure of the degree of randomness present in a physical system, and, in its simplest form, the degree to which the system is in equilibrium. The concept may be applied with great effect to predict the evolution of any statistically large system: economic, social or biological. It has more recently been extended to non-equilibrium systems in the form of chaos theory, which in turn is transforming economics, meteorology and innumerable other areas, extending even to the study of the mind and its aesthetic productions.

We can generalise Snow by affirming that all areas of knowledge are to some extent complementary and that an understanding of several disciplines will lead to a richer understanding of any single area. This underlines the importance of multidisciplinary studies and the making of conceptual connections across discipline boundaries.

All of this implies the need for a broader and more comprehensive education than the present approach which too often leads to either excessive specialisation or an incoherent mixture of relatively soft options.

(3) Making the Supply-Demand Equation

The supply- demand equation can be rephrased in the following way: can higher education serve the dual role of career preparation and education for most disciplines? General and specialised programmes can be viewed as common, not competing. There is a need to provide students with a background which gives a context for professional practise, at the same time providing a wider appreciation of the global environment and general creative and social skills. If the training is overspecialised, not only

does the graduate have little chance of getting a job, he or she is also deprived of getting a better education.

In conclusion, we should surely leave open the specialised route to a small number of students who are likely to continue in their discipline after graduation. These students should also be required to take a small number of courses aimed at providing them with the appropriate teamwork and communication skills. The vast majority should be offered an alternative; while general competence in one or two areas should always be required, equal emphasis should be put on the humanistic, social and business skills essential for knowledge workers to function in the modern world. This corresponds to offering a wide, balanced programme in the liberal arts, natural and social sciences.

CHAPTER THREE: STRENGTHS AND WEAKNESSES OF THE FAS

Since the consolidation of the four Divisions into one unified FAS in 1985 there has been an ongoing discussion as to whether the present arrangement is in fact the best one. The key elements which recur are the sheer size and diversity of the FAS. The following is an attempt to identify some of the principal strengths and weaknesses of the FAS as it is now constituted.

• STRENGTHS

(a) The Potential of a Unified Structure: Perhaps the biggest strength of the FAS is a potential one, namely that its unified structure could allow the breaking of all the barriers between units. This could lead to a learning process which is more integrated and generally applicable than that obtained when Faculty boundaries have to be crossed.

(b) Programmes or Courses: The FAS has a number of units with highly regarded programmes where limited enrolments and higher entrance requirements operate, e.g. Communication Studies, Liberal Arts, Science College and Chemistry Co-op. There are highly publicised and quite unique Institutes such as Simone de Beauvoir and Lonergan which have the potential to flourish. In addition, some cost-effective general introductory-level courses open to all students are being introduced, e.g. Computer Literacy and Introduction to Statistics. Note that the exemplary programmes are interdisciplinary or employment-interactive.

(c) Accessibility and Average Class Size: There are other strengths of the FAS which are common to the University as a whole. Certainly one of these is a flexible admissions policy adapted to mature students who do not have a standard background. Associated with this is enhanced accessibility for Part Time students. Another advantage effective in attracting students is that class sizes are relatively small. All these features are and will remain considerable strengths for Concordia in the continual education and retraining that a knowledge-based society demands.

• WEAKNESSES

Many of these are not necessarily weaknesses per se; in fact, managed properly, they could become strengths.

(a) Regarding Size and Diversity: One of the main criticisms of the FAS is that, as so large and diverse a body, it lacks shared teaching and research interests and hence shared experience. A symptom of this condition, but not necessarily an intrinsic effect of it, is the existence of faculty-wide committees such as Curriculum and Tenure, whose members know little of the needs of units and individuals in other sectors of the Faculty far removed from their own.

(b) Regarding Two Campuses: Another major source of contention has been the unrationalised use of two campuses, leading to, amongst other things, the splitting of several departments, and an arbitrary placing of unrelated departments on the Loyola Campus. Twenty years after the fact it is clear that the merger has left many residual, unsolved problems which have been exacerbated by the lack of a coherent plan of action for the two campuses as a whole.

(c) Regarding Size and Affinities of Units: The FAS is in some sense a microcosm of the University in that a chronic weakness is the excessive size variance among academic units. Units of approximately the same size could associate different disciplines more closely, and would make administration, financing and representation more equitable. Creation and association of units should be seen as a dynamic process, to enable phasing out of fading programmes and to encourage small, emerging programmes to grow and flourish.

(d) Regarding Programme Structures: There are many ways in which the programme structure of the Faculty could be improved. Despite the opportunity provided by the existence of a single Faculty, there is a lack of interdisciplinarity and a failure to encourage it. It should be properly evaluated and recognised relative to departmental teaching and research. In terms of workload it is discouraged, if not penalised. This is accompanied by excessive departmental hegemony, which leads to hiring and programme development on the basis of unit specialisation rather than on a wider cross-discipline basis. At the same time, units and Chairs have little authority and decision-making power, so that the FAS tends to evolve in an inertial mode, with preservation of the unit often a prime motivating factor. As regards programme content:

- All students should be required to take a significant number of credits in a non-cognate area.
- In line with employer demand, there is a need for more general skills courses that can be taken as options for non-specialists: examples are nutrition, economics, creative writing, business writing. There is also a need for structured options leading to business literacy/practise, in order that students in a discipline may graduate with skills allowing them to participate immediately and effectively in the market place.
- There should be a commitment across the FAS to literate writing as a requirement early in the programme.
- There should be continued and increased emphasis on co-op programmes; these programmes could be extended to selected areas in the humanities and social sciences, as has been done successfully at Waterloo.

(e) Regarding Pedagogy and Student Environment: A last area of needed improvement is related to pedagogical and student environment issues.

- In general, there is too great a gap between entrance requirements and performance standards. This is one cause of retention problems. Since solving this by lowering performance standards is clearly undesirable, we must either raise entrance requirements, or bring unprepared students up to

performance standards in the first year. Perhaps we should try to do some of both. These solutions may cost money because of loss of per student revenue, or necessary extra hiring. On the other hand, they could attract and retain more students. Helping more students reach the performance standards should become a teaching-learning goal of the Full Time faculty.

- The issue of inequitable entrance standards amongst different departments should be addressed; as a minimum, entrance standards should not be hidden, but openly stated in the Calendar and elsewhere.
- The problem of student retention could additionally be addressed by more rapidly and flexibly addressing programme supply to student demand, as Harvard does.
- The problem of the entrance-performance gap is exacerbated by the unstandardised and in some cases too few course contact hours by lectures or other forms of interactive academic contact.
- Finally, the available physical space at Concordia is not well used. The lack of user-friendly public space (unfurnished lobbies and corridors) and of interactive learning space in most units, discourages students from staying on campus and discourages student-faculty interaction. The rigid seating in most classrooms is appropriate only for lecture format, and makes even discussion difficult.

While we have placed this weakness last, it is as important as the ones above it; indeed, in view of the anticipated major changes in the learning experience in the coming years, it is one that should be urgently addressed.

CHAPTER FOUR: RESTRUCTURING AND PHYSICAL ENVIRONMENT

Guskin has articulated a critical approach to the restructuring of colleges and universities which should result in reduced overall costs and improved student learning. Two fundamental and indissociable principles are involved: restructuring administration and restructuring the work of faculty. On the administrative side, Guskin's main thesis is that cutting, combining and downsizing do not work, since the underlying cost factors will, in time, emerge anew. Rather, the global administrative structure of the institution must be rethought, for example, by asking the basic question: "If I were re-creating the (university) today, given what I know, and given current technology, what would it look like?"

As emphasised by Guskin, administrative restructuring must be done for the university as a whole and it must be started at the top. Whatever form such restructuring takes, it must involve the principle of decentralisation to the local level. Centralised systems tend to grow, to lack accountability and to become bureaucratic, all of which leads to increasing costs. At the same time, this centralisation increases the work load and the alienation at the unit level. Work loads, curriculum, tenure and promotion are examples of areas where decentralisation should be considered.

In the following the operation of the FAS is discussed in terms of the general objectives of the ideal university Faculty. It is shown how the operation of the FAS might be improved by modifications to its organisation.

(1) OBJECTIVES IN RESTRUCTURING FACULTY RESOURCES

The restructuring of the FAS will be designed, ideally,

- to create coherent programmes of study
- to promote productive interaction between faculty and students
- to provide an effective interface between the senior administration and individual faculty members.

(2) STRUCTURE OF THE FACULTY OF ARTS AND SCIENCE

In its present form the FAS only partly succeeds in attaining the above objectives.

- In general, departmental hegemony dominates, so that the programmes are isolated, with little interdisciplinarity, despite the opportunities.

- We have no evidence that the unified structure of the FAS has effectively promoted faculty-faculty, faculty-student and student-student interactions.
- The Faculty is generally perceived to be so large and diverse that it does not provide an effective interface between individual faculty and the senior administration.

There are several reasons why specific recommendations concerning restructuring of the FAS have not been made in this document. The FAS constitutes well over half of the University; hence its massive restructuring would have effects upon the University as a whole and should be approached from a University wide perspective. This is beyond the mandate and abilities of this committee. Therefore, our approach in this document is only to examine how the FAS could be modified within the present structure to better attain the stated objectives.

(3) DEPARTMENTAL STRUCTURES

While the present structure gives the greatest potential for interaction between units, in policy and in practice it has instead, ironically, permitted excessive departmental hegemony. Departments at present are too intellectually parochial and proprietorial. Given that in many cases it is apparent that the current set of departments represents an accident of history, their continued existence and role should be reevaluated in terms of tomorrow's needs. At the same time, one might question the wisdom of opportunistic mergers driven by fiscal rather than academic considerations as a remedy for these weaknesses. Experience indicates that elimination of departments, by merger or decree, is heavily resisted by faculty, leads to unacceptable drop in morale and generally becomes a public relations nightmare best avoided. There are other approaches equivalent in their ultimate effectiveness, which are explored below.

(4) PHYSICAL RESTRUCTURING TO MAXIMISE INTERACTION

The physical environment can help or hinder the goals which more abstract administrative structuring is designed to attain. In fact, planning the use of space represents the physical implementation of the intellectual goals of the administrative structure. The basic model is relatively simple: fostering interaction involves setting up a proximity relationship such that accidental, day-to-day contact is inevitable.

Very generally, the distribution of learning and research resources throughout the university should be designed to maximise contact between faculty with related professional interests, between students and

the faculty who work in the disciplines of interest to them, between students with related academic interests and between researchers and the resources relevant to their research.

In the case of faculty-faculty interaction, it seems clear that the distribution of departments should reflect this fact directly; departments should share physical space (or be immediately adjacent to) other departments of relevance to their intellectual purpose. When this principle is used to map departments onto the two campuses, it follows straightforwardly that each campus should reflect a particular set of intellectual concerns and group departments according to the principle outlined above. Indeed, one can imagine an alternative to forced mergers in which a relationship of close proximity is established, enabling the sharing of costly resources such as office equipment, computers, informal common space for faculty and students. Such a physical arrangement would also rationalise day to day administration by a reduction in the number of support staff, as well as fostering joint, cross faculty appointments and facilitating interdisciplinary programmes.

To a large extent these new structures would easily allow integration of space for students; space to study, meet with colleagues, programme advisors, access computing resources etc. Again, the ideal spatial arrangement would maximise the likelihood of informal contact between these various groups. It follows that the arrangement would also provide the necessary environment for student-student interaction and encourage the type of peer learning which studies have shown to be effective.

CHAPTER FIVE: THE LEARNING EXPERIENCE AND THE WORK OF FACULTY

Guskin argues that the critical restructuring to be done is that of the learning experience and the work of faculty. A fresh approach, taking into account new technologies and current financial and social realities, must be adopted. Guskin's main point in restructuring the work of faculty is that "focusing on student learning turns our thinking about the future of our colleges and universities upside down; from faculty productivity to student productivity, from faculty disciplinary interests to what students need to learn, from faculty teaching styles to student learning styles, from classroom teaching to student learning." Traditional approaches to increasing faculty productivity are based on two unexamined assumptions: (i) that faculty members teaching students in a classroom setting is essential for student learning, and, as a consequence (ii) that "increasing the productivity of faculty members requires increasing the number of classes taught and/or the number of students taught in a particular class."

(1) The Learning Experience

The traditional conceptions of teaching and learning have required that professors and students come together in the same place for two to three hours a week, where the students spend the majority of their time listening to the professor. Current and emerging technologies will allow us to rethink this view of the classroom and to provide rich learning environments which will move beyond our usual ideas about classroom space and time. The following chart suggests some of the technologies which might support teachers and students interacting at different times and in different places.

	Same time	Different Time
Same Location	Classroom Lecture Discussion groups, tutorials Overheads, slides, videos Laboratories PC projection Simulations	Multimedia workstations Internet Groupware File sharing Simulations Virtual Reality
Different Location	Audio Teleconferencing Educational TV/radio Fax Audiographic conferencing Videoconferencing Scensharing	Correspondence (print based) Audio/videotape Fax Voice mail Internet Groupware

(Distance Education and Technology - Enabled Learning for Engineering Education, March 1995)

At Concordia, there are programmes already in place which correspond to the above model:

- In some courses professors make their lecture notes and other supplementary materials available to their students through computer networks.
- Professors and TAs are available by e-mail to answer students' questions.
- Students can search the resources of the Concordia library and other libraries without coming to campus.
- The vast information resources of the Internet can be searched and retrieved with computer, modem and printer.
- Videos are available in the Learning Labs to provide supplementary or remedial material
- In some courses the notes from in-class exercises and discussion are stored on disk and made available in computer labs.
- Computer hookups in classes, with large screen projection, can provide real time demonstrations of various statistical techniques, the Internet, and the World Wide Web.
- With our videoconferencing facilities our students can have access to experts anywhere in the world, and our professors can teach students anywhere these facilities exist.

What are the implications of these changes to practice? There are many, and foremost are the improvements in pedagogical efficiency. The enhancement of the rapid sharing and increased accessibility to knowledge enhance student learning. Very often, this means that the student or faculty member connects with the required information instead of simply abandoning the process due to the many obstacles in place (e.g., difficulty in obtaining obscure or rare texts etc.). There are also evident cost and time savings associated with these measures. In a recent call to "restructure faculty work" in order to increase student learning and reduce costs, Guskin suggests we examine the different types of learning and match these to the most appropriate resources (e.g., faculty time, peer groups and technology).

Types of Student Learning	Faculty Role	Peer-Group Role/ Individual learning	Technology
Accumulation of Knowledge and Information	Faculty presenter; faculty or librarian as guide to resources; faculty assessment of learning	Independent learning; use of guides to access new technology and/or to help with independent learning	Interactive technologies; access to databases; communication technology network with others throughout the country
Skill Development	Faculty coaching outside of class; faculty as group discussion leader; faculty as trainer of student coaches	Older and more experienced peers as coaches; action settings using skills	Interactive technologies; computer simulation
Conceptual Development	Faculty as mentor and model; small group discussion leadership; faculty as convenor of cooperative learning groups; one-on-one advising; faculty-student interaction	Peer-group interaction -- cooperative learning groups; testing ideas in real-life experience; independent learning	Simulation/virtual reality; human simulation; communication technology networks

(Alan E. Guskin, *Change*, p.24, Sept./Oct. 1994)

Beyond rethinking how we are to teach, we also need to re-examine what we teach. There have been a number of studies in this regard (e.g. AACU, Guelph). The following would seem to be essential to a good education:

- Critical analysis, logical thinking, conceptualisation.
- Literacy: writing, reading, speaking, listening
- Understanding numerical data
- Historical awareness
- Scientific inquiry
- Ethical understanding

- Aesthetic appreciation
- International and multicultural perspectives
- Depth and breadth of learning
- Enlargement of intellectual comfort zones

(2) The Nature of faculty Work

What changes need to be made to the system in order that faculty can be recognized for their varied contributions as well as to respond to the needs of students, the departments, Faculties and University, and to the expectation of the public?

(a) Types of Scholarship

Changes in the expectation of faculty teaching will require significant changes in the university. Redesigning courses to make full use of the technologies which are available in order to increase student learning and reduce costs will initially require substantial amounts of faculty time. In addition to recognising this investment of faculty time as an important and legitimate part of their work, faculty members will also need support in order to acquire the skills necessary to re-engineer their courses. This includes technological support and instructional development.

The fundamental work of the professor is scholarship. Boyer in "Scholarship reconsidered" has distinguished four types of scholarship: discovery, integration, application, teaching. We suggest that Concordia must recognize the scholarship of teaching; and that it is well-placed to become a centre for studying such scholarship.

(b) Transitions in the Academic Workplace

Rice has identified some of the transitions in the academic workplace:

- from a focus on what faculty know to what students learn
- from professional autonomy and choice to institutional and social responsibility
- from individualistic ways of working to collaboration
- from a focus by faculty on "my" work to "our" work
- from college and university as separate worlds to public life and democratic participation

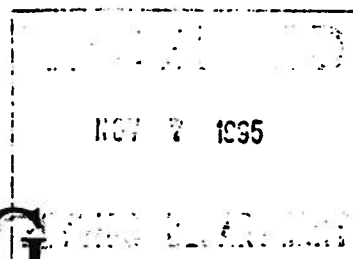
These transitions in the way the university works must be accompanied by an increased recognition of the other forms of scholarship. The focus on student learning and the recognition of the changing nature of faculty work lay the foundations for the "revision" of the Faculty of Arts and Science.

BIBLIOGRAPHY

- American Institute of Physics (AIP) Survey of $\Sigma\Pi\Sigma$ members 1994 (stats@aip.org) reported in Physics Today, 47, June 1995.
- Corporate Council of Education, Conference Board of Canada, Employability Skills Profile.
- Drucker, P.F., Post Capitalist Society, New York: Harper Business, 1990.
- Evans, F.T. and J.C. Rush, "Skill Competence Development during the transition from University to Work", Canadian Sociology and Anthropology Association meeting, Queen's University, Kingston, Ont., June 4, 1991.
- Guskin, Alan E., "Reducing Student Costs and Enhancing Student Learning: The University Challenge of the 1990s", Change, July/August 1994.
- Rich, Adrienne, "When We Dead Awaken: Writing as Re-Vision", On Lies, Secrets, and Silence. N.Y.: Norton, 1979.
- Snow, C.P., The Two Cultures and a Second Look, Cambridge University Press, 1964.
- Towers Perrin and the Hudson Institute of Canada, Workplace 2000, Toronto: Towers & Perrin, 1991.

REDUCING STUDENT COSTS AND ENHANCING STUDENT LEARNING

The University Challenge of the 1990s



Part I

RESTRUCTURING THE ADMINISTRATION

BY ALAN E. GUSKIN



Editor's Note: The following is the first part of a two-part article on the restructuring of college and university administration and faculty as a means of reducing the overall cost to students while improving student learning. The second part, on restructuring faculty, will appear in the September/October issue.

Colleges and universities today face their most significant crisis in over 40 years. The analysis of this crisis has coalesced over the

last year with a focus on the double-edged sword of costs: the expenses of institutions are too high for their revenues and the costs of what we offer are growing beyond students' (and their families') capability or willingness to pay. If there are any doubts, a quick reading of the popular or higher education press will make the point:

- A *USA Today* cover story projects tuition costs in the next 10 years that appear overwhelming to all but the wealthy;
- *Business Week*, in a substantial article on the economics of higher education, lists examples of significant cuts at major universities: 120 faculty at Syracuse, 33 faculty and 200 staff members at Tulane, a 2 percent cut at the University of Michigan;
- For each of the last two years, at least 50 percent of the public universities have experienced mid-year budgetary cuts;

Alan E. Guskin, this July, became chancellor of the five-campus Antioch University System after serving, simultaneously, as president of Antioch University (1985-1994) and of Antioch College (1987-1994). He has continued to teach and write throughout his careers as president and chancellor and holds the faculty position of Distinguished University Professor.

ILLUSTRATION BY GREG RAGLAND



- A number of major universities have had no salary increases for two to three years, including all public universities in California and the University of Minnesota; a number of prestigious liberal arts colleges also have had no salary increases in one of the last two years;
- The chancellor of the largest university system in the country reports, "I have downsized the State University of New York by 12 percent" as a result of a \$200 million cut imposed by the legislature. "We've released tenured professors, terminated viable programs. We're dangerously depleting physical stock."

I believe we have the capability to survive creatively if we choose to do so, but we will flourish only with significant, even radical, changes in how we organize our administrative structures and educate students. My fear is that because we rebounded so well from the financial problems of the early 1970s and '80s, those successes will make us cynical and cause us to shrug off the major changes required to deal with the rest of the '90s. But right now is the wrong moment for driving into the future with our eyes on the rear-view mirror.

Throughout this decade, the pressures for change will be enormous. I believe three major forces will alter our colleges and universities over the next five to 10 years, whether we like it or not:

1) The high costs associated with undergraduate education in the public and private sectors will give rise to overwhelming pressures to cut back expenses rather than increase tuition.

2) There will be an ever-growing demand from many sectors of society that we document and improve student learning outcomes.

3) Soon the new information technologies will provide the capability to alter how students learn and how faculty teach.

The costs of education. People are beginning to make comparisons between the economics of higher education and of the health care system. And the comparisons are surprising: costs that rise relentlessly; the unwillingness of providers to deal directly with the core delivery system; governance structures that rest decision-making power about costs in the hands of professionals

PEOPLE ARE BEGINNING
TO MAKE COMPARISONS
BETWEEN THE ECONOMICS OF
HIGHER EDUCATION AND
OF THE HEALTH CARE SYSTEM.
AND THE COMPARISONS
ARE SURPRISING....

whose personal interests are compromised by reducing costs; belief systems that increases in quality always require increases in expenditures; and a decentralized system that is heavily underwritten by federal dollars, but that allows federal policy-makers little direct capability to reduce costs. These are not small issues. The frustrations, even anger, they produce find new expression in a host of recent federal and state "accountability" initiatives—SPREs, report cards, faculty workload legislation—all questioning the public value delivered by higher education.

Beyond legislation, the litany of pressures on the cost side is very real:

- Institutional expenses increase relentlessly and are not being offset by non-tuition income.
- Increases in tuition and fees outstrip the capability and/or willingness of prospective students, or the public generally, to pay. Our tuition costs increasingly seem not to be credible for the educational value received; every cut-back we make decreases the perceived value of what we offer.
- Federal and state fiscal priorities will likely lead to a flattening of support over the next decade rather than increases. Higher education is becoming the fourth or fifth funding priority behind K-12, health care, welfare, and prisons.
- In the public sector, public demands for access will likely mean forcing more and more students into existing institutions, with little more in the way of financial support.
- In private institutions, financial aid costs seriously impede the ability to fund basic needs. As tuitions rise,

more students need financial aid, but less federal and state financial aid is available; so colleges increase tuition even higher, to fund the needs of financial-aid-dependent students. The result has been massive tuition discounting, with many institutions now pouring an unsupportable 20 to 40 percent of precious educational dollars into the aid kitty.

The cumulative message should be clear, even to the most skeptical: we must indeed figure out creative ways to reduce institutional expenses, and then to reduce student costs.

Student learning. Whether from employers or state governments, parents, accrediting associations, or students themselves, people want to know they are getting a good return on their own and society's educational investment. Higher education can no longer avoid demonstrating to professional and political audiences, as well as the general public, that appropriate levels and forms of student learning result from the undergraduate education we offer.

For decades, universities and colleges have wanted to define academic quality in terms of resources: faculty scholarship and degrees, the depth and breadth of curricular offerings, and the presence of topflight laboratory, library and like facilities. More recently, many institutions—and many parents and students—have come to define undergraduate quality in terms of faculty reputational rankings, campus beauty, and the range of recreational and support services offered students.

It is these definitions of quality that have led to, among other things, the proliferation of disciplinary programs based on the interests of faculty members, and to the significant increase in expenses for student support services over the last 15 years. Magazines comparing colleges and universities have come to focus on these issues rather than on what is happening to students, reinforcing this status quo.

These definitions of quality are just beginning to be questioned on a grand scale, and I'm afraid we're not ready with answers. We are so wedded to a definition of quality based on resources that we find it extremely difficult to deal with the *results* of our work, namely student learning.

While the preparation of faculty members and character of institutional facilities are important resources for student learning, it is far from clear that there is a straight-line relationship between them and the fact of student learning. Indeed, the contribution of faculty teaching to student learning is for the most part unexamined. Rarely do most faculties think hard together about how students learn, about the implications of research on student learning styles and multiple intelligences, or about developmental issues based on the age, gender, race, nationality, or life experiences of the students being taught. Faculty members are not trained or accustomed to thinking about learning processes and outcomes.

Just as difficult to change is the important, implicit assumption held by most faculty that a university is inherently a selective environment. If students don't perform well, it's their problem (or fault), irrespective of how they were taught, the environment in which they were asked to learn, or differences in their learning styles. The notion that there is or should be a direct relationship between student attainment, the tuition students pay, and the compensation of faculty members seems utterly foreign.

The truth about our present arrangements is that, for the most part, we do not know how well students have learned what they've studied, or whether they know and can do what their baccalaureate should imply. For now, most institutions and their faculties continue to avoid public and professional questions about student learning outcomes, perhaps on the (false) notion that all the fuss about them will soon pass away. But it won't.

Focusing on student learning turns our thinking about the future of our colleges and universities upside-down: from faculty productivity to student productivity, from faculty disciplinary interests to what students need to learn, from faculty teaching styles to student learning styles, from classroom teaching to student learning. These are the kinds of shifts that more and more parties are coming to see as necessary; the pressure to refocus on student learning has only begun, I believe. "Outcomes" thinking has all but carried the day in health care and K-12; now these pressures to account for student and in-

stitutional performance—driven by questions of costs—will be ours.

New technologies. For many years, we've heard about the huge benefits that would accrue from new electronic technologies. But the results seemed always to be disappointing, especially given the publicity and cost. Hence, some wariness on the part of faculty members and academic administrators may seem justified. But the new electronic technologies, I believe, are for real. The new international data highways, the inexpensive but extraordinarily powerful computers available, breakthroughs in interactive software—all these and other developments are ready to deliver on the promises.

When these new technologies are combined with students who've grown up with computers and Nintendo games, tremendous opportunities for new types of learning environments will evolve, circumstances that will both augment and replace classroom settings. The question is whether faculty members who grew up in a very different technological environment will be able to adapt to these new opportunities. Given the potential financial savings and the power of these tools for student learning, there will be a great deal of pressure to adopt them.

These new electronic technologies will not only be a powerful supplement to faculty teaching, but they may replace many learning activities faculty are now performing, even in small colleges. After 25 years of promise, that reality seems ready to happen.

Returning to my basic point: the costs of education, the demand for enhanced learning outcomes, and rapid advances in technology will bring pressures for radical change in the administrative and educational practices of American higher education. Our need is twofold: to reduce student costs and increase student learning.

THE NEED TO RESTRUCTURE

Colleges are, in many ways, potential victims of their own success over the last 40 years. In this, they are in good company, given what's happened in the corporate sector and in health care. As Michael Hammer and James Champy put it in *Reengineering the Corporation* (New York: Harper Collins, 1993).

The ironic truth is that American companies are performing so badly because they used to perform so well ... the principles on which they are organized were superbly suited to the conditions of an earlier era but can stretch only so far.

The administrative structures of our universities and colleges are organized like our businesses and suffer similar problems. Indeed, we were told two decades ago that we should operate in a more business-like manner, and thus we have: we automated, we did marketing studies, we invested more wisely, we centralized and controlled, we strategically planned, and we used consultants. In the '80s, university administrative offices grew and grew, fueled by federal and state regulations but also by our perceived need to be professional and to serve better. In this we watched our competition, sometimes too closely.

Over these years, even smaller institutions developed impressive sports facilities, and the coaches and teams to match them; all seemed to become full-scale, full-service communities, providing all levels of amenities, entertainment, and culture; many of us developed first-class recreational facilities that rival the best country clubs. All these new and upgraded services increased institutional personnel and general-expense costs; indebtedness and fund-raising efforts focused more and more on non-educational ventures.

The nature of this growth is reported in a recent study by the Pew Higher Education Research Program (Feb. 1993, Vol. 4, No. 4, Sect. B). "Expenditure Growth in Higher Education 1975-1990":

These patterns...suggest that as the comparatively mild growth in the late 1970s gave way to the boom of the 1980s, initial institutional investment strongly favored administrative expansion. Part of the administrative growth of the early 1980s may have resulted from deferred maintenance, the need to comply with increased regulations, and increased reporting requirements to government agencies. Nevertheless, a significant share of the growth reflects the sheer expansion of a professional culture within higher education's administrative ranks.



Justifying this rate of growth and maintaining the size of the administration was not difficult. Peer-institution analyses developed by national associations of the professional groups (admissions officers, registrars, business officers, development officers, financial aid officers, student activities coordinators, housing directors, student union directors, etc.), showed that each new expenditure was "appropriate." In the case of those in the lower two quartiles, arguments were made that the growth was not adequate.

It is not surprising that the administration grew in these last three decades, or that in a period of growth like the '80s all was forgiven. But in the '90s, we face a new environment, one that we are not organized to deal with. In discussing the corporate sector, Hammer and Champy sum up part of our problem:

Inflexibility, unresponsiveness, the absence of customer focus, an obsession with activity rather than result, bureaucratic paralysis, lack of innovation, high overhead—these are the legacies of one hundred years of

American industrial leadership. These characteristics are not new; they have not suddenly appeared. They have been present all along. It is just that until recently, American companies didn't have to worry about them. If costs were high, they would be passed on to the customers. If customers were dissatisfied, they had nowhere else to turn. If new products were slow in coming, customers would wait. The important managerial job was to manage growth, and the rest didn't matter. Now that growth has flattened out, the rest matters a great deal. America's business problem is that it is entering the twenty-first century with companies designed in the nineteenth century to work well in the twentieth.

How true so much of this is for so many universities and colleges! Yet significant, even radical, change in how our administrations are organized is a tall order, due to their professional administrative culture and bureaucratic structure.

A recent report by the Pew Higher Education Research Program (March 1992, Vol. 4, No. 2, Sect. B) on how universities and colleges are responding to the '90s financial problems indicates some good news, but mostly bad. The 12 institutions in the study were chosen "because they were perceived by their peers to have adopted interesting approaches to budgeting challenges."

The good news is that these nine colleges and three state higher education systems were going beyond the typical university response to financial problems; that is, they were doing more than just "raising tuition revenue and imposing budgeting discipline." The study indicates that institutional leaders are beginning to take seriously the need for a "fundamental reassessment of the scope and operations" and that of the selected institutions, "each had taken measures to achieve greater operational efficiency, while at the same time tangibly committing to quality enhancement."

The researchers were left, however, with the "prevailing impression...of the inherent difficulty in rethinking patterns of institutional growth and contraction...."

- [The interviews] did not reveal any significant instances of colleges and universities utilizing technological advances to re-engineer administra-

tive work. It appears that...technology has been used almost exclusively to automate existing practices.

- There was little evidence that institutions combined staff layoffs with a rethinking of administrative structures or work practice....
- The case studies revealed that extreme financial shortfalls do not deepen an institution's engagement with restructuring. On the contrary, a severe budget crisis requires immediate action, and the urgency constrains options to those that reduce funds uniformly across academic units and programs.

My own observation is that in most institutions we've seen cost cutting and minor changes but not significant restructuring. Or, to state it another way, we are, with some good exceptions, still employing the methods of the '70s; namely, cutting and combining.

Cutting academic programs or parts of administrative departments won't work, for the underlying cost factors will rise up again. The reason is that the present cost structure is not sustainable over time. Daniel Cheever, a former college president, sums up the present predicament: "After a year or two of serious cost cutting, many colleges will again face the relentless upward pressure to increase expenses, albeit from a lower base" ("Tomorrow's Crisis: The Cost of College," *Harvard Magazine*, Nov./Dec. 1992).

In the academic area, it seems that we are not yet ready to face directly the nature of the educational process itself, because we are not examining how faculty contribute to student learning. Basically, our orientation is that faculty do in the classroom what they should do, except that they should do a little more of it. If there are financial problems, then we should "restructure" by cutting programs or the number of faculty, but not change how faculty work.

The same basic orientation seems to hold for dealing with administrators; cut and combine, but leave the basic services and work intact. The only problem is that there is work to be done in the organization and if the work is not significantly restructured someone will still have to do it. The key to dealing with lower revenue while maintaining quality lies in rethinking the nature of the work being done.

**WE NEED THE
COURAGE TO ASK,
"IF WE WERE CREATING
THIS UNIVERSITY
ADMINISTRATION TODAY,
GIVEN WHAT WE KNOW
AND GIVEN CURRENT
TECHNOLOGY,
WHAT WOULD IT
LOOK LIKE?"**

Hammer and Champy sum it all up simply when they ask their basic question, "If I were re-creating the company today, given what I know and given current technology, what would it look like?"

Simple words, but tough to enact, because the interests of different institutional units and the people who represent them are so deep. In many ways, one can sum up the problem of how to make significant structural changes by saying that you just can't get there by muddling forward from here. We first have to figure out what "there" is, and then develop the means to get there. That requires that we look deeply into our assumptions about how we are organized.

One of the best examples of being wedded to an unquestioned assumption is the notion that centralized administrative services are most cost effective and efficient. The logic of this assumption drove administrative action throughout higher education and business until very recently. How can five business offices be justified when one can do it? How can decentralized computer systems be justified when one central machine can do it all?

This logic breaks down when we look at the effectiveness and impact of such systems on the people being served—whether customers, students, or faculty. Are people better served? The answer seems to be no, for various reasons.

First, centralized systems seem to grow inexorably (and without any real analysis of costs). Relatively unaccountable central administrators add staff to meet their needs without having to justify it to anyone but one another. The more professionalized an administrative area becomes, the more its size seems to grow to perform "needed services." The services may be real, but the cumulative costs soon become too great for the institution to afford.

Second, centralized systems become bureaucratic, which in its worst form leads people to defer decisions to the highest level, thereby creating bottlenecks and often poor decisions. People with the most formal authority and least information make decisions with far-ranging impact, yet they get little feedback since the decision's effects are remote from them. In turn, local people who must live with the decision (and who often know what should have been done) feel powerless and discouraged.

So we need the courage to ask, "If we were creating this university administration today, given what we know and given current technology, what would it look like?" This is a difficult question to ask, and its implications are even more difficult to follow. Yet, I believe it can be and must be done. If, following institutional priorities, we decentralize everything that can be decentralized and integrate and centralize only those things that are absolutely essential (and review these "essential" assumptions continuously), less can be more: fewer people, lower office costs, more local accountability, more access to decision-makers, and more and better decisions. To be effective in doing this, we need to focus on student learning and student costs, not on the professional needs of administrators or faculty.

ANTIOCH: A BRIEF CASE STUDY

My own recent experience might be helpful in reviewing how one university chose to deal with changing the central administrative areas and the difficulties in doing so. We have nearly completed a major restructuring and re-engineering of the university's central administration, which has significantly reduced the administrative overhead costs at a savings to the institution of over \$750,000 a year. (The total budget

units based on external standards and supported by an internal administrative professional culture.

- Major restructuring changes require a conception of the restructured administrative structure, the "there," as a new organization, because it really is. Metaphorically (and really!) we are closing one unit and opening another. Not only are the tasks to be performed different, but the culture has to be different.
- Because resistance exists in many places, vigilant leadership is essential. The basic decision to restructure is ultimately not a collaborative one. However, planning and implementing the restructuring effort can and should be participative and collaborative. The people included in such open, collaborative processes should be those who conceive of themselves as part of the restructured organization, rather than those who conceive of themselves as part of the organization that is being closed.
- It is likely that some important senior and/or middle-level administrators will have to leave and/or be totally bypassed in the restructuring process. In our case, the senior vice president for finance left; she was a long-term employee who was opposed to the restructuring and couldn't or wouldn't change.
- The use of new computer technologies is essential in the restructured administrative organization, and the new restructured roles should be built around the power and potential of the computers. This is a major shift in thinking. Hammer and Champy put it succinctly: "the fundamental error that most companies commit when they look at technology is to view it through the lens of existing processes.... The real power of technology is not that it can make the old processes work better, but that it enables organizations to break old rules and create new ways of working." But no one should be sanguine about the difficulties in doing this; introducing new computer technologies is never easy and never follows the simple path predicted.

One fascinating aspect of the entire planning effort was the paradoxical nature of the process which, at times, was unnerving. A powerful hi-

**I HAVE ONE CAVEAT ABOUT
RESTRUCTURING
IN COLLEGES
AND UNIVERSITIES:
IMPLEMENTATION OF
RADICAL ALTERATIONS
IN ALL ADMINISTRATIVE
AREAS MUST PRECEDE
IMPLEMENTATION OF
MAJOR CHANGES IN THE
ROLE OF FACULTY.**

erarchical decision had to be made in order to move from a command and control to a collaborative, partnership-oriented administrative culture; a centralized decision was required to decentralize; and the decentralization of the university administrative structure led to the increased integration of the university.

The basic decision to decentralize—the goals and the strategy—required an intuitive leap by a few university leaders. At the same time, adherence to the goals and basic strategy throughout the administration was and is essential: if this elaborate change effort was to be successful, no one could be permitted to stand in the way of the implementation, no matter what his or her position. After that point, collaboration and flexibility were vital.

Philosophically, especially given the strong egalitarian nature of Antioch, the paradoxical nature of the entire administrative restructuring—where hierarchy was needed to produce collaboration—was personally problematic for many people. Nevertheless, the reality for the middle managers on each of the five campuses, the staff members most impacted by this change, has been their collaboration with each other and active participation on all key universitywide decisions affecting their areas. Almost everyone involved seems to feel that the basic strategy is working—although not

without bumps and bruises—and that they are much more integrated into the university as a whole.

A CAVEAT

I have one caveat about restructuring in colleges and universities: implementation of radical alterations in all administrative areas must precede implementation of major changes in the role of faculty. I assert this for strategic and tactical reasons. Strategically, enhancing student learning and reducing student costs are, in my judgment, the primary yardsticks for any changes. Since the faculty and academic areas are most directly tied to student learning, alterations in the lower-priority support areas must precede them. Tactically, faculty will be asked to change how they work, and they have a great deal of control over what they ultimately do. University and college leaders would have little credibility in challenging faculty members to change their work so significantly and reduce the total size of the faculty if they themselves were reluctant to radically alter the size and work of the administrative and service areas. Beyond this, by making these changes first, administrators may be presenting a model to the faculty on how it might be done.

Having said this, I also recognize that even significant alterations in how administrative work is organized will not produce enough savings to significantly reduce student costs. The faculty and related academic support staff and expenses represent at least 50 percent of the cost structure of most universities and colleges, while administrative costs probably represent about 25 to 30 percent. Significant reduction in university expenses will have to involve major cost savings in the academic area.

As will be developed in Part 2 of this article in the next *Change*—"Restructuring the Faculty"—the reductions in the academic area—as in the administrative area—must come from the restructuring of how people work, not merely from cutting and combining faculty positions. I will present some ideas for discussion about what changes might be made in faculty roles as a result of the incorporation of new electronic technologies and how faculty work might be refocused from teaching to student learning. ■

REDUCING STUDENT COSTS
& ENHANCING STUDENT LEARNING

Part II

RESTRUCTURING THE ROLE OF FACULTY

BY ALAN E. GUSKIN



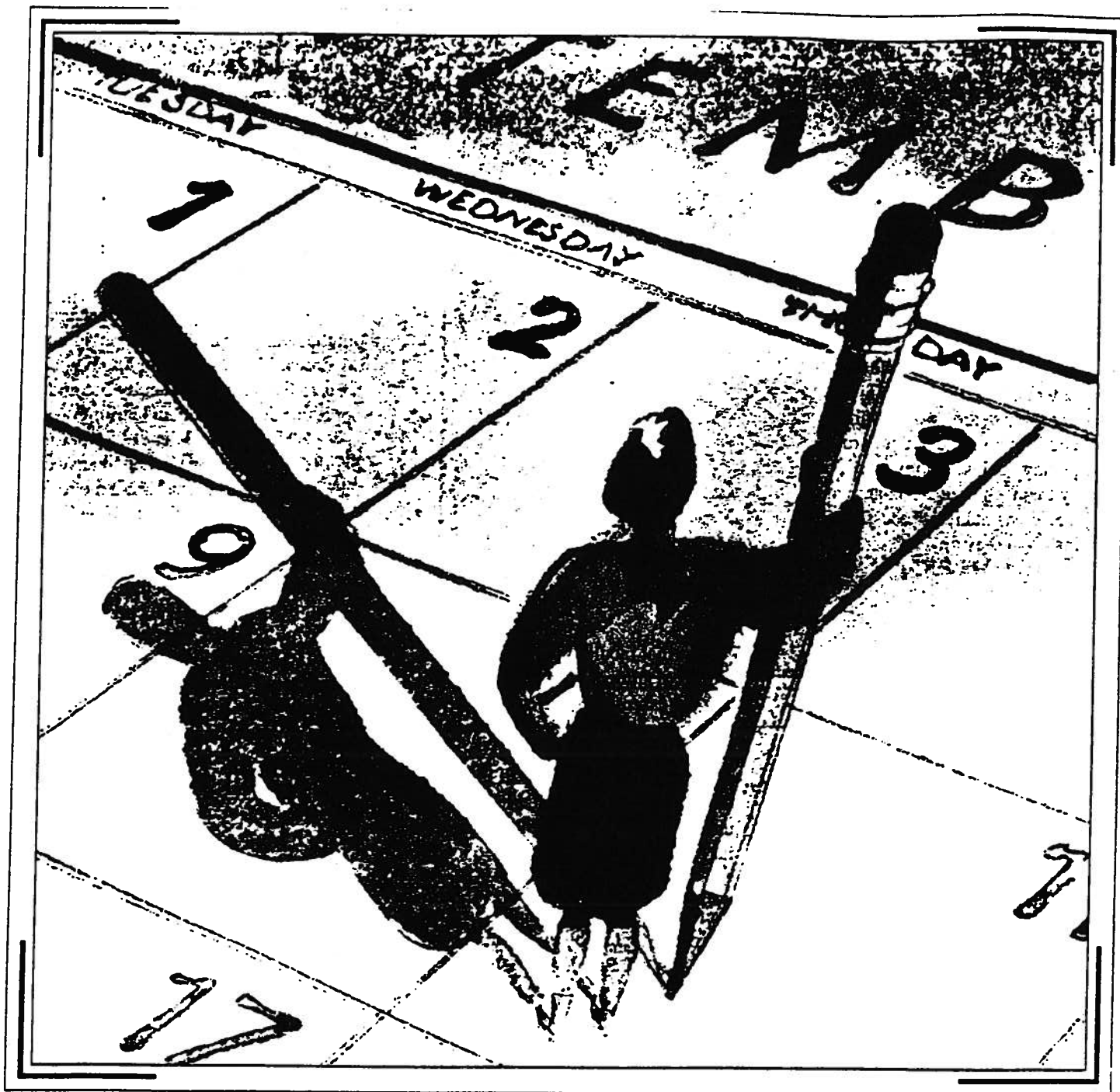
In Part I of this article (in the July/August issue), I sketched out some of the major changes that higher education may undergo in the next five to 10 years as it tries to deal with increasingly unacceptable levels of student costs, rising institutional expenses, an emphasis on student learning outcomes, and the power of new electronic technologies to enhance student learning. To deal with these forces, I described significant changes in how administrative work is organized and argued that administrative cost reduction must precede major alterations in the academic area.

I also made clear that administrative reductions will not produce enough savings to significantly reduce student costs and that any significant reduction in university expenses will have to involve major cost savings in the academic area. In this second article, I extend

the argument that significant increases in faculty productivity will only be possible by fundamentally restructuring the work of faculty members.

Restructuring the role of faculty members will, at first, prove to be a monumental undertaking. All of the incentives seem against doing so—except, in the end, survival. For over three decades faculty have been trained and rewarded to “do their own work”—namely, research, writing, consulting,

Alan E. Guskin, this July, became chancellor of the five-campus Antioch University System after serving, simultaneously, as president of Antioch University (1985-1994) and of Antioch College (1987-1994). From 1975 to 1985 he was chancellor of the University of Wisconsin-Parkside. He has continued to teach and write throughout his careers as president and chancellor and currently holds the faculty position of Distinguished University Professor.



RESTRUCTURING THE ROLE
OF FACULTY MEMBERS WILL,
AT FIRST, PROVE TO BE A
MONUMENTAL UNDERTAKING.
ALL OF THE INCENTIVES SEEM
AGAINST DOING SO—
EXCEPT, IN THE END, SURVIVAL.

and so on—often with a lightening of their teaching “load.” During this same period, university governance structures have shifted powerfully to emphasize the primacy of the faculty and of individual faculty members themselves; it is the faculty who determine the nature of the curriculum, the priorities for faculty work, and even the faculty workload. Hence, the idea of increasing faculty productivity runs counter to the personal and professional interests of faculty and the way they (and almost everyone else in university life) have come to define a meaningful faculty role in educating students. The result is a university president’s or dean’s worst nightmare: the need is to convince faculty to change how and what they teach, but faculty themselves are in charge of the very decision-making processes that determine what they do.

Gordon Winston, writing last year in *Change* (January/February 1993) about the economics of colleges and universities, summed up the depth of this challenge:

We’ve got a whole generation of faculty (and young administrators) who have never seen anything but the lush 1980s and a larger number who have persuaded themselves that the expansions of the ‘80s were normal....

The fundamental challenge to college administrators over the next few years, arguably, will be to induce a highly resistant community to understand that there’s an economic reality within which they’ll have to live, one that may include “downsizing” and “restructuring” and the biting of all sorts of personally painful bullets.

Higher education’s predicament is not very different from that being faced in the corporate and health care worlds: survival depends on radical change, yet the people needing to change the most are in control of the decision-making processes that must deal with the change. On campus, as elsewhere, institutional leadership and strong doses of courage are required.

Our thinking about how to increase faculty productivity is undermined by unexamined assumptions about how faculty members influence student learning. In effect, the status quo is based on two overarching assumptions:

THE PRIMARY LEARNING
.....
ENVIRONMENT FOR
.....
UNDERGRADUATE STUDENTS,
.....
THE FAIRLY PASSIVE
.....
LECTURE-DISCUSSION FORMAT
.....
WHERE FACULTY TALK AND
.....
MOST STUDENTS LISTEN,
.....
IS CONTRARY TO ALMOST
.....
EVERY PRINCIPLE OF OPTIMAL
.....
SETTINGS FOR STUDENT
.....
LEARNING.

- that faculty members teaching groups of students in a classroom setting are essential for effective student learning; and, based on this assumption,
- that increasing the productivity of faculty members requires increasing the number of classes taught and/or the number of students taught in a particular class.

Some productivity gains can no doubt be produced by faculty just teaching more, that is, by doing more of what they now do. But I don’t believe the volume of activity is the appropriate goal: the issue is not how many courses faculty teach, but how much students learn. A few more faculty members teaching more courses will not significantly reduce institutional expenses or increase student learning.

The reality is that faculty do work hard, and much of that work does not involve doing research. A good deal of their time is spent teaching, as well as in other non-research, non-teaching activities. Indeed, the significant changes and reduction in administrative expenses discussed in Part I, which are an essential first step in reducing university costs, will likely increase the amount of non-teaching work faculty members perform.

Tinkering with the balance between teaching and research won’t radically alter institutional expenses; neither

will reducing wasteful activity and meetings. Surely there can be modest gains as faculty teach a bit more and fewer people are hired as part-timers. But these savings will be small and, not even in the short term, make a real difference in the underlying expense structure of a college or university.

By the same token, cutting departments or even entire schools won’t solve the financial problem. We could make such cuts (and all the small changes above) and probably survive, but the reality would be an ever-increasing downhill struggle entailing big, net costs to the quality of faculty life and opportunities for student learning.

What follows is one attempt to begin the discussion needed to answer the challenge of restructuring the role of faculty over the next five to 10 years. In this effort, there is no *one* model for success, except that faculty and administrators must work together to create alternatives to the present arrangements. In doing so, they must simulate the human and financial benefits and costs of these alternatives. There is, however, *one* model for failure; that is, to deny the reality that we need to restructure the roles of administrators and faculty in order to reduce institutional expenses and student costs.

I venture into this arena not out of a deep understanding of all that could be done, but in an attempt to break through the generic assertion that “what we need to do is restructure what faculty do” but without giving any examples of what is meant by doing so. Further, there are now a number of articles appearing that appropriately stress the need to introduce the new information technologies, but don’t develop examples of how this might be done—and especially how it relates to what we know about student learning. The following discussion attempts to begin meeting the challenge of rethinking the role of faculty and the use of new technologies in order both to enhance student learning and reduce student costs.

RESTRUCTURING THE ROLE OF FACULTY

The alternative to the present role of faculty states the problem and challenge: *to create learning environments focused directly on activities that enhance student learning, we must re-*

structure the role of the faculty to maximize essential faculty-student interaction, integrate new technologies fully into the student learning process, and enhance student learning through peer interaction.

The radical restructuring of the faculty role called for here requires that we understand anew how faculty contribute best to student learning—an understanding that is readily available in our research literatures but that is uncommonly put into practice by faculty.

Let me begin with a set of summary conclusions:

- There are key elements of the student learning process that only can be accomplished effectively through the human interaction of students and faculty members.
- There are key elements of the student learning process that can be accomplished effectively using electronic technologies, especially new information technologies.
- There are key elements of the student learning process that can be accomplished effectively through peer interaction without the presence of a faculty member and by students learning by themselves inside and outside the institution.

These propositions are the cornerstones of the proposals that follow, which aim to reduce the number of faculty while increasing student learning. My proposals in brief are that students will spend more time learning by themselves and with their peers and much more time engaged with powerful, interactive technologies, and will spend less actual time—but more creative, intensive, and focused time—with faculty members. Faculty, in turn, will work with greater numbers of students but “teach” much less.

STUDENT LEARNING

Student learning at the undergraduate level is very complex, both in our aims and in what is achieved, whether directly or indirectly. We want students to learn about a lot of things. We want them to accumulate information and knowledge in a host of fields, with depth in at least one. We expect students to develop skills not only in writing and communication but in the use of quantitative and scientific methods and

in the learning of a foreign language. Even more importantly, we have strong expectations regarding students’ conceptual learning—the development of conceptual, intellectual tools that enable them to compare and contrast the material they are acquiring and to make judgments about its relevance to other issues of concern.

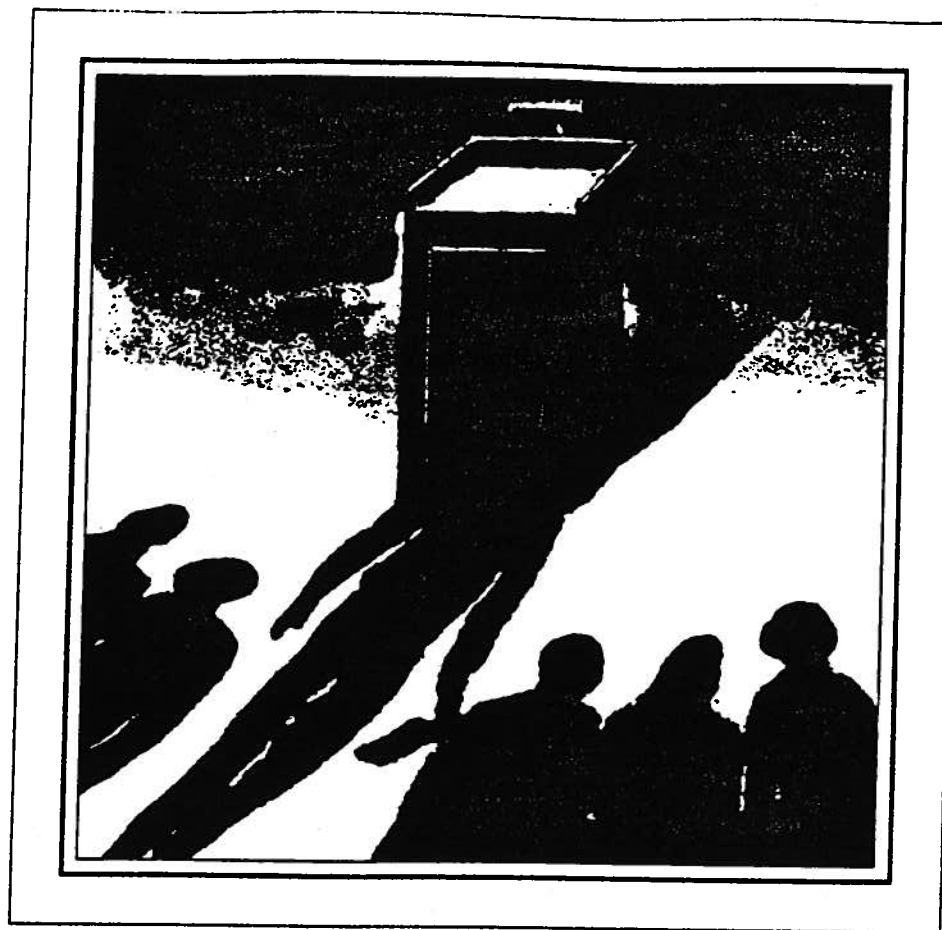
These three types of learning—accumulation of information and knowledge, skill development, and conceptual development—occur more or less effectively in most institutional learning environments. Nevertheless, ample evidence exists that there are certain settings that foster such learning. Psychologist Donald Norman discusses the optimal environment for the individual student. Arthur Chickering and Zelda Gamson—both higher education researchers—refer to how faculty can increase student learning through better practices. Together these two approaches help us better understand what we might look at in order to enhance student learning.

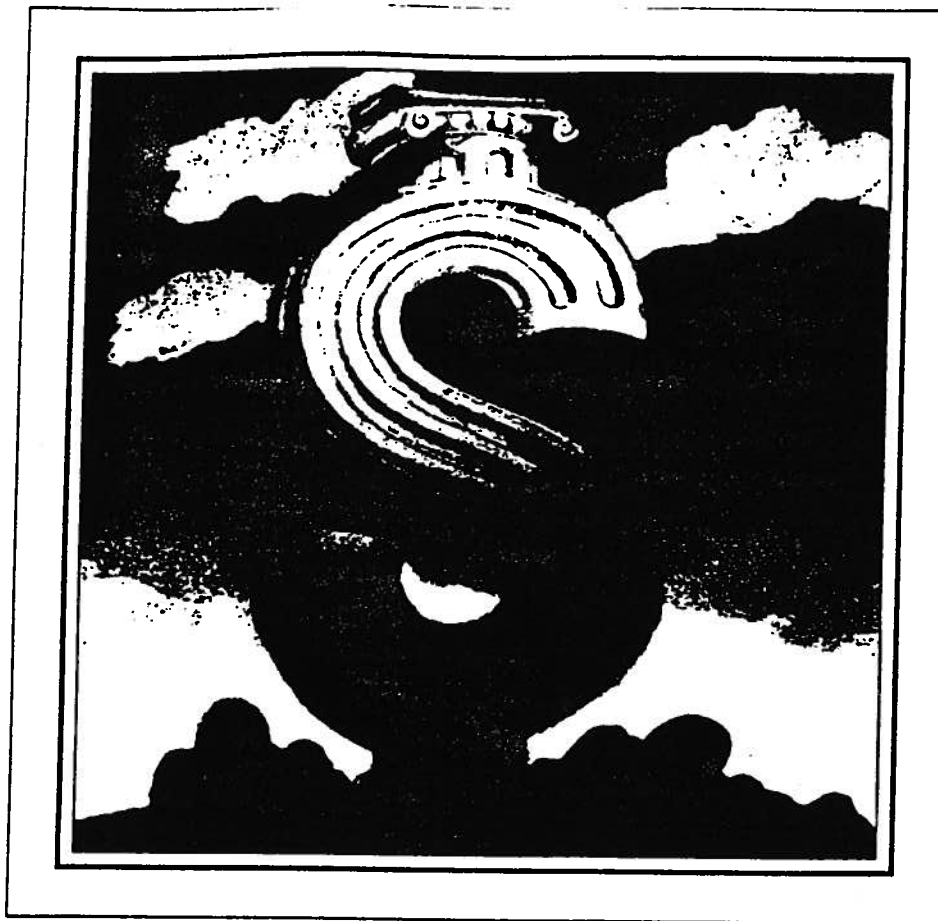
Based on what we know today, Norman (1993) states that the optimal environment for learning exists when we

- provide a high intensity of interaction and feedback;
- have specific goals and established procedures;
- motivate;
- provide a continual feeling of challenge, one that is neither so difficult as to create a sense of hopelessness and frustration, nor so easy as to produce boredom;
- provide a sense of direct engagement, producing a feeling of directly experiencing the environment, directly working on the task;
- provide appropriate tools that fit the user and task so well that they aid and do not distract; and
- avoid distraction and disruptions that intervene and destroy the subjective experience.

Chickering and Gamson, in their influential article, “Seven Principles for Good Practices in Undergraduate Education,” summarize many years of research on good practice in college teaching. They conclude that good practice

- encourages student/faculty contact;
- encourages cooperation among students;





- encourages active learning;
- gives prompt feedback;
- emphasizes time on task;
- communicates high expectations; and
- respects diverse talents and ways of learning.

These optimal settings present a clear message to most every college and university: that the primary learning environment for undergraduate students, the fairly passive lecture-discussion format where faculty talk and most students listen, is contrary to almost every principle of optimal settings for student learning. While the lecture and lecture-discussion formats are, overwhelmingly, the common practice at most universities where large classes, multiple-choice exams, and teaching assistants are the norm, this situation is also true for too much of the education that occurs in most smaller colleges. Intimate faculty/student contact that encourages feedback, that motivates students, and that allows students to perform is the exception, not the norm. Direct faculty-student engagement outside of class and other formal settings is not common, and students are only oc-

asionally provided vehicles for real peer, collaborative learning with and without faculty.

LEARNING STRATEGIES

In focusing on human and technological learning strategies that could help us think through alternative ways for faculty to practice their profession both in classroom and non-classroom settings, this effort attempts to turn the typical discussion of the role of faculty upside-down. The focus is not on how faculty teach but on how students learn and doing whatever it takes to enhance such learning.

I believe rethinking what faculty do can be accomplished because so much effort currently is expended using methods that are not very effective in producing high levels of student learning—namely talking at students in fairly large groups and imparting information to them. And, it is precisely this function that will be most easily and effectively performed by the new computer technologies.

I also believe that faculty spend precious little time involved in the activities that are unique to faculty and that have major impact on student learning—namely direct, individual faculty/student interaction, intense small group discussions, mentoring and advising—and in encouraging students to be involved in activities that are important for student learning but do not involve faculty—peer-group, team-oriented settings, peer tutoring and coaching, and experiential learning outside the institution (see Alexander Astin's [1992] research). Further, I believe faculty members can effectively and efficiently use new technologies in a way that will enhance and/or often substitute for a good deal of their present teaching method, thereby freeing them to spend time with more students and to have a greater impact on the learning of all these students.

All the above forms the context for the analyses that follow. The three following learning strategies borrow from Donald Norman's discussion of student learning in his 1993 book, *Things That Make Us Smart*.

1) ACCUMULATION OF INFORMATION AND KNOWLEDGE

This learning strategy is rather straightforward and represents a good

deal of what occurs in higher education today. The common format is the faculty lecture or lecture/discussion. In addition to using books, an old "tool" for maximizing this presentation of information, faculty sometimes use visual aids, like films, videos, and the like.

It is hard to imagine an area more ripe for the new information technologies, some of which already exist and many of which are forthcoming on a monthly basis. Over the next five to 10 years, sophisticated interactive software for college-level subject matter will be easily accessible. While the initial cost of developing such interactive technologies is high, the size of the higher education market will attract enterprising software developers and will lead to reasonable costs. In fact, as the market for software grows, the growth in software choices will probably be exponential.

Beyond interactive technology is the ready access to an "information superhighway"—the Internet—where students can gather information from all over the nation and world, access numerous library catalogs and databases, and communicate freely on their own with peers and experts. The growth of new "superhighways" will definitely happen within the next few years, as will the availability of vast amounts of information in a variety of formats.

The power of these new technologies is enormous, especially so for student learning and access. Students will be able to gain access to these storehouses of information, knowledge, and human-electronic interaction anytime and at any place, which will enable those with different learning styles to adapt the information and ideas received to their special needs.

A major faculty role, and especially the role of the librarian as information technology expert, will be to guide students to these sources by helping them learn how to ask the right questions. I believe the combination of good human and technological guides and well-developed electronically interactive formats will be essential in enabling students to explore the vast potential of the new electronic resources. Rather than the faculty member providing this information through lecture or lecture-discussion formats, a librarian/information technology expert and/or appropriate written and technology-based guides will be able to do so.

**WHILE THE INITIAL COST
OF DEVELOPING SUCH
INTERACTIVE TECHNOLOGIES
IS HIGH, THE SIZE OF THE
HIGHER EDUCATION MARKET
WILL ATTRACT ENTERPRISING
SOFTWARE DEVELOPERS
AND WILL LEAD TO
REASONABLE COSTS.**

Courses as we now know them may be radically altered so that a student would learn a particular subject area in a series of "learning blocks," with one block focused on electronic sources, another on intensive interaction with a faculty member, a third on intensive lecture-discussion formats over brief periods of time, a fourth in real-life experiences or simulations, and even another block as a peer-study group. Evaluation of student learning in a particular area, then, would include separate assessments of the learning achieved in each of these blocks integrated into a total assessment of the learning demonstrated.

2) SKILL DEVELOPMENT

High-level skill development represents a good deal of the work of colleges and universities: from the more basic levels of math, quantitative methods, writing, communicating, and foreign languages, to the higher-level skills of research and scholarly methods, to the arts and communication technologies, skill development is very much a focus of our efforts.

Coaching—A critical aspect of skill development, coaching is when an experienced individual uses a combination of tips, advice, and example to help a student avoid unnecessary pitfalls. What seemed insurmountable in the beginning (e.g., acquiring the speed of a native speaker in a foreign language) becomes readily understandable and easily

performed as the skill is developed. The coach's role involves providing continuous feedback, encouragement, and in many cases, demonstration.

Obviously, coaching performed by a highly experienced expert may be desirable, but it is not always necessary. Communication-oriented foreign language training sessions can be led by relatively inexperienced native speakers and upper-division students fluent in a language, who have been taught a specific method of teaching languages. Having highly paid faculty teach grammar or even spoken language is less effective and more costly than a skill-oriented, spoken language program. The Peace Corps, for example, has been teaching languages this way for over 30 years.

The efficiency of this model can be very striking. At Antioch College, the number of languages taught using this approach tripled without increasing the number of faculty and by very modestly increasing the costs for assistants. The key to the program's success is its conception of language learning: the focus is on students' ability to use the language and native speakers' following a well-thought-out linguistic method that emphasizes communication.

In fact, a good argument can be made for coaching/tutoring in many skill areas where upper-level students are paired with lower-level ones in a fairly intimate learning environment. It may be that peer coaching in lower-level areas is more effective than faculty coaching because the older peer really understands how to overcome learning hurdles that are but faint memories to faculty members. Evidence shows that in such peer coaching situations both the upper- and lower-level students increase their learning. The combination of more effective learning and reduced expenses may well be a powerful motivation for increasing this learning method.

While interactive technology cannot substitute for human coaching, there are many skill areas—including language learning—where interactive technologies and computer analysis can be a major aid in reducing the time needed for human coaching by highly trained experts.

Simulation—The advances just beginning to occur in software that simulates science laboratories could be a boon



to colleges and universities. Using this software can reduce, significantly, the expense of costly laboratory materials and of maintaining extremely expensive specialized labs. While these simulated laboratories are only now in the early stages of development, it is highly likely that as universities seek to cut costs, the market for such software will grow significantly, thereby increasing the quantity and quality of the simulations.

The extent to which such simulation technology is developing was highlighted in a *New York Times* article (Oct. 31, 1993) that described how new virtual reality technology is being developed to train surgeons:

Virtual reality, the use of electronic sensors and computer-generated images to give people the illusion of participating in fabricated events, is moving beyond the game room and into practical applications in medical schools and other real-life settings.

Just as flight simulators have long been used to train pilots before they climb into actual airplanes, authorities in a variety of fields say virtual

reality "environments" have a bright future as a training tool for students and as a way to give doctors and engineers a "dry run" through risky or costly procedures.

It is likely that because of the ease of use and the reduced need for lab staff, students using computer-simulated laboratories will be able to carry out more experiments and learn more about "doing science" than otherwise possible. And because these simulation experiences will be able to be carried out at any time and place—and will be easily repeated—students with different learning styles will be able to learn at their own pace and achieve the same level of understanding as those more attuned to the formal laboratory settings. It is possible that the flexibility and availability of computer-simulated laboratories actually will increase the quality of student work. Also, since small groups of students will be able to work together more easily at their own convenience, there is more potential for increasing learning.

The key to successfully using such simulated lab experiences in honing the skills of undergraduate science students

will be understanding the balance between hands-on work in a lab and use of computer simulation. How much real touching and feeling of the equipment and chemicals is necessary for student to "do" science? Surely, some touching and feeling is necessary, but how much is really needed if we focus on the learning needs of students and not on traditions and past practice of faculty members? It also must be emphasized that students entering college in the next five to 10 years will be attuned to working in computer-generated environments—whether from playing games, traveling on the information superhighway, or working with interactive television systems.

An interesting by-product of changing the nature of science labs is the implication for academic calendar. Since the large blocks of time needed to schedule science labs are usually major impediments to serious calendar revisions, shortening the time spent in lab and increasing the time spent on computer simulations has profoundly positive implications for calendar change, as well as student learning.

3) CONCEPTUAL DEVELOPMENT

Most educators would consider conceptual learning the cornerstone of good undergraduate education. Conceptual learning is hard work; it not only requires a good deal of reflection, but it literally forces students to restructure how they think about a particular area of life and, as a result, to readjust the ideas they have about it.

As students advance through their undergraduate education, they are expected to form new conceptual abilities. Unfortunately, when the faculty use instructional strategies that are not consistent with a reflective mode of learning and that do not motivate students, such restructuring of conceptual frameworks is difficult to achieve. Newman (1993) writes:

...the trick in teaching is to entice and motivate the student into excitement and interest in the topic, and then give them the proper tools to reflect; to explore, compare, and integrate; to form the proper conceptual structures....

...the problem is to make students want to do the hard work that is necessary for reflection.

Motivation turns out to be the key. If a highly entertaining environment creates such motivation, fine, although most entertainment is not reflective in orientation. It turns out, Norman's studies show, that students who were highly motivated learned the material far better than those who were uninterested, irrespective of how the material was presented.

Faculty members who helped train the early groups of Peace Corps volunteers found, to their delight, that the volunteers were so motivated to learn that the faculty were unprepared to deal with them because of the faculty members' experiences in typical classroom settings. Many volunteers were average college graduates who were intensely focused on going overseas to serve, and thus hungry to learn anything they could about the country in which they were going to live and work for two years. Challenging questions were common, and students' attempts to project themselves into the reality of their new country led them to rethink their views about the Third World and their own country. As someone who went through the training, I know that this intense and challenging new learning was not easy, especially given the time pressure, but it was exciting for everyone because the volunteers were so highly motivated to learn.

The typical faculty/student lecture-discussion only rarely reaches these levels of motivation, even in the hands of the best faculty. Yet, we know that our students spend hours intensely involved in activities they care about. Norman (1993) writes about game makers:

They obviously know how to capture interest sufficiently well that real learning takes place, albeit learning of irrelevant subjects.

The solution is to merge what each group of people can do best. Educators know what needs to be learned; they are simply pretty bad at figuring out how to get the intense, devoted concentration required for the learning to take place. The field of entertainment knows how to create interest and excitement. It can manipulate the information and images. But it doesn't know what to teach.

Perhaps we could merge these skills. The trick is to marry the entertain-

THE CHALLENGE FOR FACULTY MEMBERS WILL BE TO INTEGRATE THE NEW WORLD OF SIMULATION AND INTERACTIVE TECHNOLOGIES WITH THEIR OWN UNIQUE ROLE AS MENTORS, COACHES, FACILITATORS, AND TEACHERS OF STUDENT LEARNING.

ment world's skills of perception and of capturing the user's engagement with the educator's skills of reflective, in-depth analysis.

It is difficult to imagine the present generation of students sitting day after day and week after week, focusing on and listening primarily to lectures—even exciting ones involving discussion. It is more likely that they will be better focused and more motivated in well-designed settings using interactive technologies. The challenge for faculty members will be to integrate the new world of simulation and interactive technologies with their own unique role as mentors, coaches, facilitators, and teachers of student learning.

Simulation—We've discussed the use of interactive technology and computer simulation in regard to other learning modes. Such technologies also can play an important role in reflective thought if they are designed well, allowing a student to delve deeper and deeper into areas of interest while encouraging reflection. Much of this level of highly sophisticated interactive technology is only a few years away. But when it does arrive it will find ready takers among the student body, if not as easily among the faculty.

Mentoring and Human Simulation—Simulations involving interactive technologies are exciting ventures and will expand the learning environment for students while containing costs; so, too, will the use of human simulations.

There are many instances where creative faculty have redesigned their undergraduate courses as learning laboratories, using one or another simulated environment to motivate and challenge students to reflect on their beliefs and actions; for example, simulating school and city decision-making settings and developing research projects. A similar classroom strategy involves teaching through case studies, which, in creative hands, can simulate problem-solving activities. These strategies combine the excitement of experiential learning with the intensity and focus necessary for reflection, thereby creating powerful learning environments for conceptual development. Unfortunately, such courses are the exception and occur in the context of three or four other classes offered in the typical lecture-discussion format.

Mentoring and Small Group Intensive Discussions—While there are many times when one-on-one faculty/student interaction facilitates reflection, small group discussions also can be very effective environments for such learning because students not only receive support from their peers for their new conceptions but can share their different perspectives and even feel comfortable remaining silent and thinking. At the same time, the pressure of peers can provide an intensity and excitement to discussions—if the faculty member knows how to lead small group discussions.

A faculty member serving as a mentor/group leader not only can provide students with the feedback and focus that challenge conceptual thinking, but can enable students to build a sense of confidence in their own ideas. This type of faculty-student interaction is obviously a labor-intensive activity, but it is very important for enhancing student learning. However, when these intense group discussions, which can take place over a limited period of time, are integrated with information and experiences acquired in settings without faculty presence, the goal of reducing expenses and enhancing student learning can occur. It is possible that by doing this faculty members can spend less time with more students than would be the case in most college courses while, I believe, having more impact on student learning.

Testing Ideas in Real-Life Experience and Reflection—The growth of student interest in community ser-

pected to be passive recipients of information and knowledge, even though we know that the most effective learning occurs when students are active learners. Restructuring the role of faculty as outlined above—or in almost any other scenario—and integrating new computer technologies into the learning process will mean that students must not only be active but more independent learners. There also will be an increased emphasis on intrinsic motivation rather than external rewards, which, as discussed earlier, leads to more effective conceptual learning.

From passive to active learner, from an emphasis on learning primarily in larger groups to a focus on smaller, more intimate groups and independent learning, from being concerned with extrinsic rewards to a concern for internal motivation—these changes in the role of student as learner will not fall easily on students trained throughout their education to be passive learners in larger groups focused on grades. But besides learning more, the concrete benefits to the individual student will be considerable—namely greater access to high-quality education at substantially reduced costs.

Faculty members will benefit from this new student role by having more exciting student learners and a university that can afford adequate faculty salaries and learning resources. The benefit to the society may well be better-educated students, who will be badly needed in the technologically intense and sophisticated 21st century.

A second implication of the new faculty role is that wholesale alterations will have to be made in the *academic calendar* as we now know it. The calendar will need to be more flexible not only to allow different subject matter to be taught and learned using different time patterns, but to encourage and enhance different learning styles. As mentioned earlier, in many areas students will learn a great deal of the subject matter using a series of learning blocks, with different blocks focused on electronic sources; peer-study groups; intensive, faculty-led mini-lecture-discussion sessions; intensive, short-term, faculty-led seminar discussion sessions; or off-campus learning by doing.

For the most part, the present academic calendar is built to enable faculty

RESOURCES

■ Astin, Alexander. *What Matters in College? Four Critical Years Revisited*, San Francisco: Jossey-Bass, 1992.

■ Chickering, Arthur W. and Zelda Gamson. "Seven Principles for Good Practices in Undergraduate Education," in *New Directions in Teaching and Learning*, No. 47, San Francisco: Jossey-Bass, 1991.

■ Norman, Donald. *Things That Make Us Smart: Defending Human Attributes in the Age of the Machine*, Reading, Mass: Addison-Wesley, 1993.

■ Winston, Gordon. "New Dangers in Old Traditions: The Reporting of Economic Performance in Colleges and Universities," *Change*, Vol. 25, No. 1, Jan./Feb. 1993.

to teach groups of students in classroom settings meeting two or three times per week. If the calendar becomes refocused to deal with the needs and tools of student learning, it will be very different than it is now.

Third, the undergraduate curriculum as presently organized will have to change from its present focus on faculty disciplinary interests to a focus on student learning. This will require a significant philosophical shift for almost all colleges and universities, even most small liberal arts colleges.

The restructuring of the faculty role over the next five to 10 years also will require significant changes in *assessment procedures*. If our primary focus is on student learning and if such learning occurs in a number of different settings—intense faculty/student interaction, teams of peers, the use of interactive technologies, reflection on experience—student assessment must focus on the individual student and what he or she has learned. An individual faculty member evaluating a group of students by grades would be inappropriate. I expect a number of different methods might be tried with a focus on student proficiency that could be demonstrated in a number of different

ways depending on the student's learning style. It is also possible that there will be more focus on student learning contracts developed in close interaction with faculty.

Maybe all this is just wishful thinking, but the assessment of student learning may become a primary area of faculty-student interaction—an interaction that could possibly have considerable positive impact on students.

CHANGES NEEDED

Colleges and universities are locked in an unexamined educational delivery system that is increasing in costs while, at best, maintaining a steady state in student learning. Even some of the better reforms being considered, which require years and a great deal of human energy to implement, will not produce significant increases in student learning nor stem the tide of increasing institutional expenses and student costs, if they accept as basic the present underlying educational process and relationship between faculty and students.

Restructuring the role of faculty is a monumental undertaking, more difficult and more significant than the administrative restructuring that must precede it. If successful, faculty members will change their present teaching practices and become primarily concerned with enhancing and facilitating student learning. To accomplish this, many faculty will need to acquire additional skills.

This is a difficult challenge, but one we must face. The unacceptability of student costs will drive us to change, the new technologies will challenge us to alter our practices, and the society will force us to be accountable. And if we do not reduce costs creatively, it will be done for us by federal and state governments or the marketplace. We must begin by asking ourselves, if in the next five to 10 years we have to cut faculty positions 25 to 30 percent without significantly increasing class size or faculty workload, how will we do it?

It is just possible that if we reduce administrative and student services expenses by 25 to 33 percent and the size of the faculty by 25 to 33 percent, we might be able to hold down student costs. And, if we carry out these changes creatively, we might accomplish this while also enhancing student learning. ■